REMARKS

By this response, a minor amendment has been made to claim 1 to correct an inadvertent typographical error made in the preliminary amendment filed January 12, 2006. Claims 1-17 and 19-20 are thus currently under examination in the present application. For the reasons set forth below, Applicants submit that the present amendments and arguments overcome all prior objections and rejections and place this application in condition for immediate allowance.

In the Office Action of June 6, 2008, the Examiner rejected claims 1-6, 17, and 19 under 35 U.S.C. §103(a) as being unpatentable over Agatzini (GR 1001555) in view of Queneau (US 4,044,096), Patzelt (US 5,642,863), and Parker (US 4,173,519). In particular, the Examiner asserted that although Agatzini does not teach beneficiating the ore to separate it into an upgraded ore fraction and a coarse, siliceous low-grade rejects fraction, which is substantially free from fines and clay materials, or separately processing the upgraded ore fraction for the recovery of nickel and cobalt, it would have been obvious to one of ordinary skill in the art to combine the disclosures of Agatzini, Queneau, Patzelt, and Parker and modify the low-grade nickel heap leaching process of Agatzini to include separating the ore into a upgraded fraction and low-grade rejects fraction, separating the fines from the coarse low-grade fraction, and processing the upgraded fraction for the recovery of nickel and cobalt. For the reasons set forth below, Applicants respectfully traverse the rejection and request that it be withdrawn.

The claims of the present application are directed toward a process where laterite ore is first beneficiated so as to separate the ore into its upgraded ore fraction and its low grade rejects fraction, where both fractions are then separately processed. The upgraded ore fraction can be subjected to a high pressure acid leach or an atmospheric pressure agitation leach, to produce the a pregnant leach solution. The low grade rejects fraction, however, is directly subjected to a heap leach with an acid supplemented solution. In some embodiments of the present invention, the acid supplemented solution can be the acidified waste solution from the acid leach of the upgraded ore fraction or, alternatively, the acid supplemented solution can be from an independent source such as acidified water, sea water, or underground brine. None of the prior art references, either alone or in combination, teach or suggest such a process whereby an ore is beneficiated and separated into an upgraded ore fraction and a low grade rejects fraction, where the low grade rejects fraction is subjected to a heap leach process to further recover nickel and cobalt from laterite ores.

Agatzini describes a process for extracting nickel and cobalt from a laterite ore by heap leaching the ore with a dilute sulfuric acid solution. The leaching method involves multiple recycling of the dilute sulfuric acid solution through one or more ore heaps. Further, the Agatzini reference discloses that the clays and fines associated with a laterite ore can hinder percolation of the lixiviant through the heap. Agatzini addresses this problem by wetting the ore with either water or some of the lixiviant in order to increase the moisture content of the ore by about 10%. This causes the clay constituents to swell and assists in agglomerating the existing fines, which has the effect of improving the

porosity of the heap and enabling adequate percolation of the lixiviant through the heap. The process of pre-wetting the ore thus results in the Agatzini process being used to treat the whole run-of-mine ore in a single heap.

In sharp contrast to Agatzini, however, the process described and claimed in the present application includes beneficiating the ore to separate the higher grade fine fraction from the coarse low grade rejects fraction. Generally, nickel is predominantly associated with the very fine grained iron hydroxide minerals such as goethite rather the coarse low grade rejects fraction which is predominantly harder. As such, coarser quartz material and the rejects fraction is usually discarded as it is generally regarded in the field as being too uneconomical to recover nickel from the low grade rejects fractions.

Unexpectedly, however, Applicants have discovered an economical process whereby nickel can be recovered from a siliceous low grade rejects fraction following separation of that fraction from the upgraded ore fraction. In this regard, Applicants have surprisingly discovered that it is possible to recover nickel and cobalt economically from the low grade rejects fraction by heap leaching as the Applicants have found that the ore is sufficiently porous to enable adequate percolation of the lixiviant without the need to include a wetting or agglomeration step as is done in Agatzini. Unlike the Agatzini reference, which treats the entirety of the ore in a single heap, the process described and claimed in the present application only heap leaches that part of the ore that would ordinarily be discarded and, accordingly, Agatzini cannot be fairly characterized as rendering obvious the claims of the present application.

Queneau adds nothing further in this regard and it is indeed the case that Queneau does not provide any teaching or suggestion as to how one of ordinary skill in the art could recover nickel from the coarse fraction, as it appears Queneau is predominantly concerned with obtaining nickel from the fines or the upgraded ore fraction. Queneau provides no teaching or suggestion with regard to heap leaching of a low grade ore fraction. Although, Queneau includes some mention of the importance of size classification in order to optimize the recovery of nickel from the upgraded ore fraction, it does not deal with treating the low grade nickel ore to further recover nickel and, as such, there does not appear to be any apparent reason, nor has the Examiner provided one, that would motivate one of ordinary skill in the art to combine the teachings of Agatzini with those of Queneau to produce the claimed invention.

Further, it is also the case that there does not appear to be any reason that would motivate the skilled artisan to consult Patzelt in combination with either Agatzini or Queneau, or both. Patzelt describes a method where the run of mine ore is first ground between two rolls and then the ore is divided into its oversize and fine material. In this regard, it is noted that Patzelt does not relate to the processing of laterite ores and, further, includes no teaching or suggestion that specifically addresses the problems caused by fines and clay materials when heap leaching a laterite ore fraction. Indeed, although no specific ore type is mentioned in Patzelt, reference to the application of atmospheric oxygen inside the heap (col. 2, line 4) and reference to specific literature (col. 1, lines 8-9 and 19-20), would indicate to the skilled artisan that Patzelt is in fact related to metal extraction from sulfide ores, and not laterite ores.

In this regard, it is also noted that Patzelt provides no teaching or suggestion in terms of heap leaching a laterite ore. Although some mention is included in Patzelt that oversized material may be heap leached as the particles of oversize material or agglomerates of oversized material leave sufficient pore indices between then, Patzelt does not teach or suggest the specific requirements that are needed for treating a laterite type ore where the fines and coarse siliceous material co-exist and the beneficiation process involves separating out the already existing coarse siliceous low grade rejects fraction from the fines and clay materials. As noted above, Patzelt is not concerned with the treatment of laterite ores, but instead relates to ores which are amenable to crushing in order to create differing sized ores such as copper containing sulfide ores. Therefore, like with Queneau, it is apparent that the skilled artisan would have no motivation to consult the Patzelt reference in view of the further references cited by the Examiner.

With regard to Parker, Parker describes a process for the recovery of gold and silver and, in particular, the recovery of gold and silver in a cyanide leach at high pH (col. 4, lines 48-50 and claim 2). Parker discusses that slimes, such as clay materials, can be removed from a coarse fraction prior to heap leaching, but this is done to enable the recover of any gold and silver from within the slime material. Parker does not teach or suggest that nickel can be economically recovered from laterite fractions by heap leaching of that fraction, and, accordingly one of ordinary skill would not have consulted this reference, either alone or in combination with the other cited references, to create a process that includes recovering nickel from laterite fraction by heap leaching.

By way of providing a summary, Agatzini is directed towards a process whereby the whole run-of-mine ore is treated with a dilute sulfuric acid solution in a single heap, and includes no teaching or suggestion with regard to extracting nickel and cobalt by heap leaching a low grade rejects fraction following separation of that fraction from the upgraded ore fraction. Further, Queneau, Patzelt, and Parker provide not teaching or suggestion regarding heap leaching of a low grade laterite ore fraction and, in fact, Patzelt and Parker are not even directed to laterite ores at all, but instead relate to the processing of sulfide ores and the recovery of gold and silver, respectively. Accordingly, the claims of the present application are not rendered obvious by the cited references and the Examiner's rejection on the basis of these references is respectfully traversed and should be withdrawn.

In the Office Action of June 6, 2008, the Examiner then rejected claims 7-16 and 20 under 35 U.S.C. §103(a) as being unpatentable over Agatzini in view of Queneau, Patzelt, and Parker as applied to claims 1-6, 17, and 19 above, in further view of Arroyo (US 2002/0041840). In making the rejection, the Examiner asserted that although Agatzini, Queneau, Patzelt, and Parker do not teach separating laterite ore into limonite and saprolite fractions, Arroyo may be combined with these references to supply the missing teaching and render claims 7-16 and 20 obvious. For the reasons set forth below, Applicants respectfully traverse this rejection and request that it be withdrawn.

Arroyo describes a process where the saprolite and limonite fractions of a laterite ore are separated, pulped (i.e. slurried), and then leached inside agitation tanks under atmospheric pressure. However, this reference is not concerned, nor does it teach or

suggest, heap leaching. The process described in Arroyo is one in which the limonite is leached in agitation tanks and the saprolite is added to the leachate from that process to neutralize the resulting acid from the iron hydrolysis.

Conversely, claim 7 of the present application, and the claims that depend therefrom, include the step of separately beneficiating both the limonite and saprolite fractions so that an upgraded and a rejects fraction is obtained from both the limonite and saprolite fractions. Arroyo, like the Agatzini, Queneau, Patzelt, and Parker references, do not teach or suggest the step of heap leaching the low grade rejects fraction as Arroyo does not recognize that the rejects fraction may be economically treated in that manner. As such, Arroyo, either alone or in combination with the other cited references, does not teach or suggest the process described and claimed in the present application as it is only concerned with separating the limonite and saprolite fractions in an atmospheric leach process and does not relate to the separate treatment of upgraded and rejects fractions.

Accordingly, Applicants respectfully submit that the present invention is not rendered obvious by the cited Arroyo reference, either alone or in combination with the Agatzini, Queneau, Patzelt, and Parker references, and that the claims of the present application are clearly patentable over these references. Applicants thus submit that the Examiner's rejection on the basis of the cited references is respectfully traversed and should be withdrawn.

In light of the amendments and arguments provided herewith, Applicants submit that the present application overcomes all prior rejections and objections, and has been placed in condition for allowance. Such action is respectfully requested.

Respectfully submitted,

Date: October 31, 2008

By: B. Aaron Schulman
Registration No.: 31,877

STITES & HARBISON PLLC ◆ 1199 North Fairfax St. ◆ Suite 900 ◆ Alexandria, VA 22314
TEL: 703-739-4900 ◆ FAX: 703-739-9577 ◆ CUSTOMER NO. 000881